



# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re:	Thomas B. Hall and Walter Burt	Confirmation No:	3955
Serial No:	09/607,162	Group:	2672
Filed:	June 29, 2000	Examiner:	Harrison, Chante E.
For:	System and Method for Transmitting Interactive Synchronized Graphics		

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## **APPELLANTS' REPLY BRIEF**

Mail Stop Appeal Brief- Patents  
**Assistant Commissioner for Patents**  
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Sir:

This is the Applicants' reply brief in response to the Examiner's Answer, mailed April 21, 2004, (Paper No. 15). Oral argument is hereby requested in accordance with 37 CFR 1.194. The requisite fee is authorized to be charged to our deposit account in the enclosed Fee Calculation Sheet.

### **Related Appeals and Interferences**

There are no related appeals or interferences. This statement was present in the Appellant's Brief and is repeated in the present Reply.

### **Summary of the Invention**

Appellant hereby presents the summary of invention which was omitted from the Appellant's Brief by clerical error.

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The present invention performs logical partition of a file into a number of logical independent data sets. One such logical data set comprises information about the graphical data which are necessary to display sheet music on a computer screen. The graphical set contains all the information about bars, notes and all music notation for displaying and presenting a piece of sheet music. Another logical set of data comprises multimedia information which maps musical notation onto different musical and interactive functions associated with the notation. The two sets of data graphical and

multimedia-are independent from each other and can be further broken down into various subsets of data. Graphical and multimedia sets can be delivered to a user independently, or only one set of data can be delivered, if, for example, the user chooses to download only the graphical representation of the sheet music without the accompanying multimedia data.

An important feature of the present invention is a multi-media data subset comprising a hierarchical structure of bounding boxes. Although the bounding boxes are not explicitly shown on the screen when a piece of sheet music is displayed, they are implicitly present in the representation of the music. These bounding boxes may be used to serve a variety of functions. For instance, they may delineate areas of the graphics that correspond to events in a time stream. Thus, in the case of sheet music, the bounding boxes are used to position the musical graphics on the screen to insure that the relevant portions of the music are visible when the music is playing. During playback, the bounding boxes may also be used to locate and hi-light individual notes and instruments in the music. Other functions, such as hotlinking specific areas of the graphical display to multimedia functions, and setting time passages and instrumental tracks from user mouse input, are conveniently performed through these bounding boxes.

The bounding boxes are laid out on a displayed page of sheet music as a multi-level hierarchical structure and comprise the following hierarchical levels. A level 1 bounding box generally corresponds to the page displayed on the computer screen. A level 2 bounding box generally corresponds to a system of music on the page. A level 3 bounding box generally corresponds to a staff of music within the system box. A level 4 bounding box generally corresponds to a measure of music within the staff box. A level 5 bounding box generally corresponds to a vertical slice of chord music within the measure box. A level 6 bounding box generally corresponds to a note within the slice box. It is noted that level 5 and 6 bounding boxes are optional. All levels of bounding boxes may be used in performing the described functions. Generally, however, certain levels of bounding boxes are particularly helpful in a specific function. For example, level 1 page boxes are used to display and fit a page on the screen, level 6 boxes are used to highlight subvoices or to generate a MIDI file. The position of the first bounding box on a page is determined by coordinates calculated from the top left corner of the page. The positions of a subsequent bounding box are calculated from the positions of the preceding bounding box.

The minimization of the size of a data file is achieved by separating the set of data pertaining to the bounding boxes and the set of data pertaining to the information that is associated with the bounding boxes. To relate the hierarchical structure of bounding boxes to the interactive feature data contained in the same file, the multimedia data set maps each bounding box with a particular notation of an interactive capability. For example, the multimedia data will direct a half middle C note to be played with a certain bounding box on a page.

Although the multimedia set of data alone without the graphical set may not be very useful to a user, the present invention provides for using the separability of the multimedia and graphical sets of data to allow the user to download the graphical data set first, and then download the multimedia set at a later time. Since each file encoded in

accordance with the method of the present invention consists of logically separate and independent sets and subsets of data, the file can be stripped out of the data not needed during a particular download, which data can be delivered to the user later. The separability of various data sets also provides great flexibility in the inclusion, exclusion, and substitution of various multimedia features. For instance, synchronization of sheet music to a different musical performance may be achieved by substituting a new set of timing values in the timing data.

The separation of graphical and multimedia sets of data in a file, especially the separation of the bounding boxes and the information associated with the boxes, also provides various levels of abstraction in displaying, printing, viewing the music and performing the interactive features associated with the music. For example, in a particular musical piece, the user can choose to display on the screen the full score of the music with only a melody and the chords highlighted, while playing a complete performance of the piece of music with all the voices and the orchestra.

Use of the bounding box abstraction in music representation together with the logical separation of the graphical and multimedia sets of data in a file makes it especially convenient and efficient to link the bounding boxes to the time sequence in order to synchronize the performance of the music with the corresponding music notation and features displayed on the screen. The present invention synchronizes performing of a musical piece with displaying and highlighting it on a computer screen by building a time sequence, which maps the time line of the performance onto the corresponding bounding boxes. The data file encoding a musical piece contains in it the sequences for each musical instrument or voice performing the piece. Since time sequences result from mapping the time line of the performance onto the bounding box data set, eliminating, therefore, the necessity to relate the time line to any other information contained in the data file, the size of the file can be kept small and suitable for fast transmissions between the server and the client sites.

A bounding box is associated with automatic self-contained educational content. To achieve this feature, a bounding box corresponding to a particular note, or musical sign, or a musical term is categorized. If a user clicks on a musical sign, or a term, or a note, a pop-up window with educational content will appear on the computer screen. The help file containing the educational information appearing in the pop-up windows can be downloaded by a user once and then used as needed in different pieces of music. The MTD (Music Transfer Document) file format supports extensive segmentation of graphical and time-ordered data into discrete units (called "sections" below).

## Grouping of Claims

Claims 1-20 stand or fall separately. The reasons are repeated and provided in a clearer format below in compliance with 37 C.F.R. 1.192(c)(7) and (c)(8).

## Response to Examiner's Argument

1. Appellant has reviewed the arguments presented by the Patent Office and finds them to be without merit. To use an analogy, Appellant's claimed invention teaches how to deliver a particular kind of product in a particular kind of a box. Cave talks about how to generally design various boxes for delivering various kinds of products. Logically, Cave cannot be an anticipatory patent.

Appellant also respectfully brings to the attention of the Board that the Cave, Kennedy and Eller patents were disclosed by the Appellant to the Patent Office in the IDS filed on November 14, 2000, and that the Claims of the present application were drafted with knowledge of the above-referenced patents.

**Claim 1.** With regard to patentability of Claim 1, Appellant repeats its arguments presented in the Appellant's Brief in their entirety. Additionally, Cave does not teach or suggests logically separating the data, it is irrelevant for Cave's bandwidth design tool. The data in Cave could have been separate from the outset and processed by the design tool as such. Cave is silent about logically separating the data into graphic and multimedia sets.

Moreover, the Patent Office's argument that something in Cave might suggest a logical separation is irrelevant. The legal standard of anticipation under 35 USC 102 does not deal with what a reference might suggest. The Cave reference should disclose logically separating the data into graphical and multimedia sets, which it explicitly does not.

With regard to the Examiner's Answer on page 5, it is explicitly written in Cave that the playback icons serve to indicate to a designer an impermissible condition that a playback becomes too information rich for the bandwidth and that a corrective action must be taken (Abstract). Nothing in Cave suggests even remotely that the icons serve to synchronize displayed graphical data with a series of time ordered events, as claimed in Claim 1.

With regard to Examiner's Answer on page 6, even if Cave's icons had some hierarchy, which Appellant does not admit, Cave's icons are directed to different ends

than the bounding boxes in the Claim and have nothing to do with storing data (Claim 7) or defining a track being a path through the hierarchical structure of binding boxes, as claimed in Claim 1. The Patent Office has not indicated where such tracks are described in Cave. The undersigned has reviewed Cave and was unable to find where a track through the hierarchical structure of bounding boxes is described. Figs 2A and 2D of Cave, cited by the Patent Office, describe the size of the objects in kilo bytes. For example, in Fig. 2D the size of the object is calculated as an area of a rectangle in the visual design tool as:

$$\text{Bandwidth(kB per second)} \times \text{Time (sec)} = \text{Size (kB)}$$

Determining of the area of an object in Cave has nothing to do with providing tracks defining a path through the hierarchy of bounding boxes, as claimed in Claim 1.

Therefore, for all the reason presented in the Appellant's Brief and additionally presented in this Reply Brief and previously presented reasons, Claim 1 is not anticipated by Cave and should be allowed.

**Claim 2.** With regard to Claim 2, all the arguments presented with regard to Claim 1 are repeated in their entirety. Additionally, nowhere in Cave the series of time ordered events corresponding to a musical performance is disclosed. Cave models the size of a media object which can be optimized within varying bandwidth availability. (Col. 3, lines 50-52). Bandwidth multiplied by duration gives the size of the object. Cave does not deal with the series of time ordered events in a musical performance, it deals with putting objects of certain sizes through the available bandwidth.

Also, regarding the limitation of logically separating the data unto graphical and multimedia sets, the cited Figures of Cave, 2a and 2D, refer to an apparently unitary "Music" object rather than the separated graphical and multimedia data of the Claim. Does "Music" in Cave mean graphic? Does "Music" in Cave mean multimedia? Cave does not disclose local separation, which, of course, is reflected in the "Music" media object. Thus, Cave does not teach logical separation, at the very least where "Music" is

involved. Therefore, and previously presented reasons Claim 2 is separately patentable over Cave and should be allowed.

**Claim 3.** With regard to Claim 3 (Examiner's Answer on page 6), Appellant repeats the arguments presented in the Appellant's Brief in their entirety. The mention of a musical score in the Abstract of Cave is nothing more than a metaphor intended to convey the real or perceived benefits of using a design tool of Cave. Cave discloses visualizing transmitting media objects of certain sizes through available bandwidth. The Examiner is invited to explain how Cave discloses visualizing the size of a B flat, or a C sharp, or a treble clef, or a crescendo, which are parts of a musical score (sheet music).

Appellant asserts that and previously presented reasons Claim 3 is separately patentable over Cave and should be allowed.

**Claim 4.** With regard to Claim 4, Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Cave does not disclose a plurality of time maps corresponding to a plurality of musical performances. Cave visualizes the topographical area of the download icons, corresponding to the size of the objects to highlight an impermissible condition to a designer. (Abstract).

Therefore, Appellant asserts that and previously presented reasons Claim 4 is separately patentable over Cave and should be allowed.

**Claim 6.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. There is no mention of a single bit for each track indicating whether a bounding box is associated with a time event. Col. 7 lines 20-30 describe that a y-axis represents bandwidth, which is indexed in Kb/s, which are the known units for measuring bandwidth. Nothing in Col. 7, lines 45-55, even remotely relates to a single bit for each track indicating association of a bounding box with a time event. Therefore, for these and previously presented reasons Claim 6 is separately patentable over Cave and should be allowed.

**Claim 11.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Additionally, no utilizing of the hierarchy of the bounding boxes to facilitate

positioning and zoom of the displayed interactive graphics could be found in Cave. In Col. 8, lines 37-46, Cave discloses that a designer can manipulate the shape and position of the download icons. As the designer adapts the shape of an icon 257, however, the system always maintains the total topographical area of the icon constant, as calculated earlier to correspond to the data size of the media object. Col. 8, lines 46-50. This is not zooming, which let a user to view smaller and smaller areas in case of zooming in, and larger and larger areas when zooming out. The hierarchy of bounding boxes as claimed in Claim 11 allows a user to zoom to a bounding box of one of the hierarchy levels and display a smaller or larger area of the graphical data. Cave does not disclose such hierarchy of bounding boxes.

Therefore, Appellant asserts that and previously presented reasons Claim 11 is separately patentable over Cave and should be allowed.

**Claim 12.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Additionally, the undersigned couldn't find anywhere in Col. 9, lines 1-10, any mention of utilizing the hierarchy of bounding boxes to facilitate hi-lighting of the displayed interactive graphics according to the user's input. Col. 9, lines 1-10 describes moving download icons around and adapting their shape to fit within the pipe and how important it is not to delay the delivery of data in media objects.

Therefore, Appellant asserts that and previously presented reasons Claim 12 is separately patentable over Cave and should be allowed.

**Claim 5.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Additionally, with regard to the Kennedy patent doesn't even mention the word "server" anywhere in the patent. Please see the enclosed printout marked as Exhibit 1. How can then Kennedy specifically disclose three sequencing schemes done on the server side? It does not.

Additionally, under *In re Lee* (cited in the response filed on February 23, 2003), a motivation to combine references the motivation to combine references must be explicitly found in the references together with an indication of a reasonable expectation of success. No Column/line numbers showing the required teaching or motivation to combine, as

well as reasonable expectation of success was made by the Patent Office. Appellant repeats its previously made arguments that the Patent Office did not meet its burden of proof in making its obviousness rejection.

Additionally, Appellant asserts that since Cave relates to a visual tool for scheduling the delivery of media objects within varying constraints of available bandwidth while Kennedy relates to method of synchronizing multiple sources of sound and images to an audio performance of a master recording, the Cave and Kennedy references would not have been combined by one of average skill in the art to come up with the Appellant's claimed invention.

Therefore, Appellant asserts that and previously presented reasons Claim 5 is separately patentable over Cave and Kennedy and should be allowed.

**Claim 7.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Additionally, as in the argument with regard to Claim 5, Appellant asserts that the Kennedy patent doesn't even mention the word "server" anywhere in the patent. Col. 3, lines 60-61, cited by the Patent Office, read that a modem enables communication over a network to other computers over the computer network. Col. 4, lines 5-22 read that a multimedia training file from a master recording can be made available to a student on a floppy disk, CD-ROM, via a network download or some combination thereof. What does this have to do with a server storing a data having two logically separated subsets? Kennedy does not even mention the existence of a server in its patent. Having networked computers does not mean there is a server present. There is nothing in a combination of Cave and Kennedy that could possibly suffice for a *prima facie* case of obviousness that the Patent Office should have done.

Therefore, Appellant asserts that and previously presented reasons Claim 7 is separately patentable over Cave and Kennedy and should be allowed.

**Claim 8.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Appellant asserts that Claim 8 is separately patentable over Cave and Kennedy and should be allowed.

**Claim 9.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Appellant asserts that and previously presented reasons Claim 9 is separately patentable over Cave and Kennedy and should be allowed.

**Claim 10.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Appellant asserts that and previously presented reasons Claim 10 is separately patentable over Cave and Kennedy and should be allowed.

**Claim 13.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Additionally, the undersigned couldn't find anywhere in Kennedy a disclosure of interactive graphics. The word interactive is not even mentioned anywhere in Kennedy.

Appellant asserts that and previously presented reasons Claim 13 is separately patentable over Cave and Kennedy and should be allowed.

**Claim 14.** Appellant repeats the arguments presented in the Appellant's Brief in their entirety. Additionally, with regard to the Kennedy patent doesn't even mention the word "server", which is one of the claim elements of Claim 14, anywhere in the patent.

Additionally no disclosure of the bounding boxes facilitating positioning and zooming of the displayed interactive graphics, as claimed in Claim 14, could be found in Cave or Kennedy. Therefore, Appellant asserts that and previously presented reasons Claim 14 is separately patentable over Cave and Kennedy and should be allowed.

**Claim 15.** Kennedy does not disclose downloading interactive graphics from a server. Kennedy doesn't even mention the word "server" in his patent. Fig. 1 shows a development system, Fig. 2 shows an individual computer, as is clear from the description of the Figures. Col. 3, lines 60-61 read about a modem communication over a network. Therefore, Appellant asserts that and previously presented reasons Claim 15 is separately patentable over Cave and Kennedy and should be allowed.

**Claim 17.** Before even getting to the merits of the Patent Office's argument, Appellant asserts that no one of ordinary skill in the relevant art would have considered combining Cave with Eller to come up with the invention claimed in Claim 17. Eller related to monitoring distribution of information accessible through a public network and a system, and method for using key-based encryption to inhibit and track unauthorized distribution. Col. 1 lines 5-12 of Eller. Cave relates to a visual tool for scheduling delivery of media objects within available bandwidth. The fact that Eller shows a server does not make it any more relevant to the subject matter of Cave or to the subject matter claimed in Claim 17.

Additionally, nowhere in Cave is there any disclosure related to eliminating repetitive encoding, as Claim in Claim 17. Therefore, for these and previously presented reasons, Appellant asserts that Claim 17 is separately patentable over Cave and Eller and should be allowed.

**Claim 18.** Col. 7, lines 28-40 of Cave (presumed as meant by the examiner, since no patent is specified with regard to this citation) read about determining each media objects size (in kB), then assigning a topographical area to that data size on the selected x-y scales of grid. The cites disclosure says nothing about defining a position of a subsequent binding box in terms of an offset from a previous bounding box, as claimed in Claim 18. Eller discloses nothing about positioning bounding boxes at all. Therefore, for these and previously presented reasons, Appellant asserts that Claim 18 is separately patentable over Cave and Eller and should be allowed.

**Claim 19.** Appellant repeats its assertion that Eller and Cave are not combinable. Therefore, for these and previously presented reasons, Appellant asserts that Claim 19 is separately patentable over Cave and Eller and should be allowed.

**Claim 20.** Appellant repeats its assertion that Eller and Cave are not combinable. Nothing is Col. 7, lines 40-55 of Cave discloses programming the viewing device to be able to determine hierarchical relationships of all bounding boxes in the hierarchical

structure. Therefore, for these and previously presented reasons, Appellant asserts that Claim 20 is separately patentable over Cave and Eller and should be allowed.

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Dated: June 21, 2004

United States Patent: 5,690,496 - Microsoft Internet Explorer

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Microsoft Internet Explorer (1 of 1)

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United States Patent (1 of 1)

Kennedy 5,690,496

November 25, 1997

Multimedia product for use in a computer for music instruction and use

Abstract

A multimedia product for use in a multimedia computer to assist a student to learn to play a given musical work previously recorded on a master recording. A method of making the product is described which ensures that multimedia representations of the work are properly synchronized to the actual tempo variations, if any, in the master recording. A method of using the product for music training is also described.

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Inventors: Kennedy, Stephen E. (Dallas, TX)

Assignee: Red Ant, Inc. ( )

Appl. No.: 689527

Filed: August 8, 1996

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Current U.S. Class: 434/307R; 84/610; 345/473; 434/307A; 715/500.1

Intern'l Class: G09B 005/00

Field of Search: 434/118, 307 R, 309-316, 365 360/32, 33, 01, 49, 70, 77, 01, 369/2, 48, 49, 59, 178, 192 84/477 R, 478, 609-614, 622, 634-638, 645 395/173-175, 326-330, 806, 807 386/95 345/122 348/61, 578

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References Cited [Referenced By]

U.S. Patent Documents

4474098	Oct., 1984	Pepersack et al.
4926734	May., 1990	Rickey.
4954969	Sep., 1990	Tsumura.

Internet

Exhibit 1